

REMARKS

Status Of Application

Claims 1-15 are pending in the application; the status of the claims is as follows:

Claims 1-15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,862,264 to Ishikawa et al (hereinafter the "Ishikawa patent").

35 U.S.C. § 103(a) Rejection

The rejection of claims 1-15 under 35 U.S.C. § 103(a), as being unpatentable over the Ishikawa patent, is respectfully traversed based on the following:

The Ishikawa patent shows a process for compressing a digital image known as fractal encoding. The Ishikawa patent specifically distinguishes this technique from DCT encoding, such as JPEG (column 1, lines 19-44). To perform fractal encoding, compression patterns BDP are extracted from each domain block BD of the image. The compression patterns are compared to the image and the pattern having the smallest differences between the image and the compression pattern is selected (*i.e.* the fractal). The image is then encoded using the selected BDP and 1) an average density value; 2) position information; 3) a reduction ratio α to size the particular BDP at the position; 4) a rotation angle θ ; and 5) a density conversion Z (column 8, lines 2-9). These factors are combined to provide eight compression patterns BDP1-BDP8 for encoding (column 9, lines 23-33). In the Ishikawa patent, a smoothed image GF is extracted from the original image GA. The difference between the smoothed image GF and the original image GA is then encoded separately as the edge image GE (column 4, line 64 – column 5, line 8). An image with smooth edges allows for more efficient fractal encoding. In one example in Ishikawa (column 11, lines 16-26) as show in figures 17A and 17B, a correction process is applied to the edge image GE1, as illustrated in figure 17A, to remove all of the edge image element below a selected threshold T1 (Th in the figures). The resulting corrected

edge image GEa1 is illustrated in figure 17B. The removed edge elements are added back to the smoothed image GF1.

In contrast to the cited prior art, claim 1 includes the steps of:

- a density conversion unit for reducing a density difference within the edge region detected by said region detector;
- a compression unit for compressing the image data within the edge region where the density difference is reduced by said density conversion unit, using discrete cosine transform ...

In responding to Applicant's arguments in the response filed on February 13, 2003, it is asserted in the Final Office Action that the Ishikawa patent discloses a density conversion unit for reducing a density difference within the edge region (column 12, lines 39-44). Applicant respectfully disagrees that the cited passage of Claim 4 of the Ishikawa patent describes a process for "reducing a density difference within the edge region." The process corresponding to the cited element in claim 4 of Ishikawa is described at column 11, lines 16-26:

FIG. 17A shows an edge image GE1 identical to that shown in FIG. 5C. A threshold T1 is applied to this edge image GE1, and images comprising pixels having a pixel value smaller than said threshold T1 are designated minute edge image GEm1, and the corrected edge image GEa1 shown in FIG. 17B is obtained by eliminating the minute edge image GEm1 from the edge image GE1. In the corrected edge image GEa1, small high-frequency components are eliminated. Minute edge image GEm are added to smoothed image GF1 shown in FIG. 5B to obtain the corrected smoothed image GFa shown in FIG. 17C.

In particular, the portions of the edge image GE1 that fall under the threshold Th as shown in figure 17A are removed from the edge image GEa1 as shown in figure 17B. The removed portions of the edge image are added back to the smoothed image GFa1. This process does not reduce any density difference in the edge image. The density differences in the remaining edge image GEa1 remain intact as illustrated in figures 17A and 17B by the fact that the pixel value (density) of the remaining element is identical in both figures. The density difference remains unchanged. Thus, the cited reference does

not show or suggest "reducing a density difference within the edge region." To support a *prima facie* case for obviousness based on a single reference, the reference as modified must show or suggest every limitation of the claim. MPEP §2143.03. Thus, the cited reference does not support a *prima facie* case for obviousness and claim 1 is not obvious over the cited prior art. Claims 2-5 are dependent upon claim 1. A claim that is dependent upon a non-obvious claim is also non-obvious. MPEP §2143.03. Therefore, claims 2-5 are also non-obvious.

Also in contrast to the cited prior art, claim 6 includes the steps of:

- detecting an edge region within an image data;
- reducing a density difference within the edge region;
- compressing the image data within the edge region where the density difference is reduced, using discrete cosine transform ...

As noted above, these features are neither shown nor suggested by the cited prior art. Therefore, claim 6 is not obvious over the cited prior art. Claims 7-10 are dependent upon non-obvious claim 6. Therefore, claims 7-10 are also non-obvious.

Also in contrast to the cited prior art, claim 11 includes a computer program product that performs the steps of:

- detecting an edge region within an image data;
- reducing a density difference within the edge region;
- compressing the image data within the edge region where the density difference is reduced, using discrete cosine transform ...

As noted above, these features are neither shown nor suggested by the cited prior art. Therefore, claim 11 is not obvious over the cited prior art. Claims 12-15 are dependent upon non-obvious claim 11. Therefore, claims 12-15 are also non-obvious.

Accordingly, it is respectfully requested that the rejection of claims 1-15 under 35 U.S.C. § 103(a) as being unpatentable over the Ishikawa patent, be reconsidered and withdrawn.

CONCLUSION


Wherefore, in view of the foregoing remarks, this application is considered to be in condition for allowance, and an early reconsideration and a Notice of Allowance are earnestly solicited.

Any fee required by this document other than the issue fee, and not submitted herewith should be charged to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260. Any refund should be credited to the same account.

If an extension of time is required to enable this document to be timely filed and there is no separate Petition for Extension of Time filed herewith, this document is to be construed as also constituting a Petition for Extension of Time Under 37 C.F.R. § 1.136(a) for a period of time sufficient to enable this document to be timely filed.

Any other fee required for such Petition for Extension of Time and any other fee required by this document pursuant to 37 C.F.R. §§ 1.16 and 1.17, other than the issue fee, and not submitted herewith should be charged to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260. Any refund should be credited to the same account.

Respectfully submitted,

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